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2 Are Economic Crises Necessary for Trade Liberalization and Fiscal Reform? The Mexican Experience

Aaron Tornell

> The bourgeoisie confesses that . . . in order to save its purse it must forfeit the crown, and the sword that is to safeguard it must at the same time be hung over its own head as a sword of Damocles.
>
> K. Marx, "Eighteenth Brumaire of Louis Bonaparte"

2.1 Introduction

In 1979, one of the oil boom years, President López Portillo announced Mexico's intention to adhere to the General Agreement on Tariffs and Trade (GATT). In 1980, having engaged in consultations with major interest groups, he then reversed this decision. Under President de la Madrid (1982–88), Mexico experienced several negative shocks, namely the collapse of the oil price and the interruption of foreign credit influx at a time when around 5% of the GDP was being used to service foreign debt. To make matters worse, the country suffered one of the severest earthquakes of the century. Still, in 1985, in the midst of this crisis, Mexico finally did accede to GATT. By 1987, it had transformed itself from an extremely closed economy into one of the most open ones in the world. And in 1993, it signed the North American Free Trade Agreement (NAFTA) with Canada and the United States. This transformation occurred notwithstanding the fact that trade liberalization implied significant adjustment costs for the private, import-competing sector, and that the state-owned sector had seen its subsidies vanish. Nonetheless, the import-competing sector, which had opposed trade liberalization in 1979, did not oppose it in 1985. It was curious that it should have been President de la Madrid, typically portrayed as weak and indecisive, who initiated the change, rather than President López Portillo, who tended to be seen as the strong leader.

Following the liberalization of trade, the government implemented a far-reaching fiscal reform. The majority of state-owned companies were privat-

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ized, bringing their number down from 1,155 in 1982 to less than 220 in 1993; the income tax rate was reduced from 42% to 34% and tax compliance was enforced, resulting in increased tax collection; and government subsidies were significantly reduced. This reform changed the sign of the primary fiscal balance from negative during the period 1970–82 to positive for each year of the period 1983–93. It is worth noting that the reform took place in a context of deteriorating terms of trade. As can be seen in figure 2.1, the index fell around 50% between 1981 and 1986.

The Mexican experience raises the question of why the reforms were implemented at a time of economic crisis rather than at a time of bonanza, when the country might have been able to "afford" the short-term costs more easily. One may look at this puzzle in at least two ways. A first perspective would be that the government has the latitude to act as if it were a central planner who maximizes some objective function and does not face any pressure from interest groups. According to this view, in the Mexican case, Presidents Echeverría (1970–76) and López Portillo (1976–82) either did what they deemed best, or what was in fashion throughout the world at that particular time, while Presidents de la Madrid (1982–88) and Salinas (1988–94) decided to follow the reformist vogue of the eighties. For this perspective, the story ends here.

By contrast, the second view would be that governments do not act in a vacuum, but in a jungle of rent-seeking groups. In this view, economic policy ceases to be the design of a central planner and becomes the result of interaction by rent-seeking groups. Thus in order to understand changes in economic policy, we would have to analyze the gains and losses of each interest group.

In all likelihood, the correct explanation is a combination of both these perspectives. However, for the purpose of shedding some light on the aforementioned puzzle, I will make the extreme contention that only interest-group interaction matters. That is, even if a government is concerned about social welfare, it will be able to implement structural reforms, such as trade liberalization, *only if* it does not encounter opposition from interest groups that have the power to block the reform.

In Mexico, the two major interest groups that blocked trade liberalization during the seventies were the import-competing, private sector elite and the state-owned companies (parastatal elite). Through the political process, these groups had almost unlimited access to fiscal revenue. They enjoyed subsidized inputs and profited from convoluted regulations and high trade barriers, which had the effect of increasing the profitability of the fixed factors in these sectors. Trade liberalization left both groups in a worse situation than the one they enjoyed under the status quo. Why is it, to reiterate the puzzle, that the private elite supported trade liberalization during bad times, even if it preferred the status quo over trade liberalization? And why is it that it would not support trade liberalization during good times?

The first point I make in this paper is that, when fiscal revenue was high in Mexico, subsidies to interest groups were high. Thus a "cohabitation equilibrium" existed between these two groups, and both were unanimously blocking

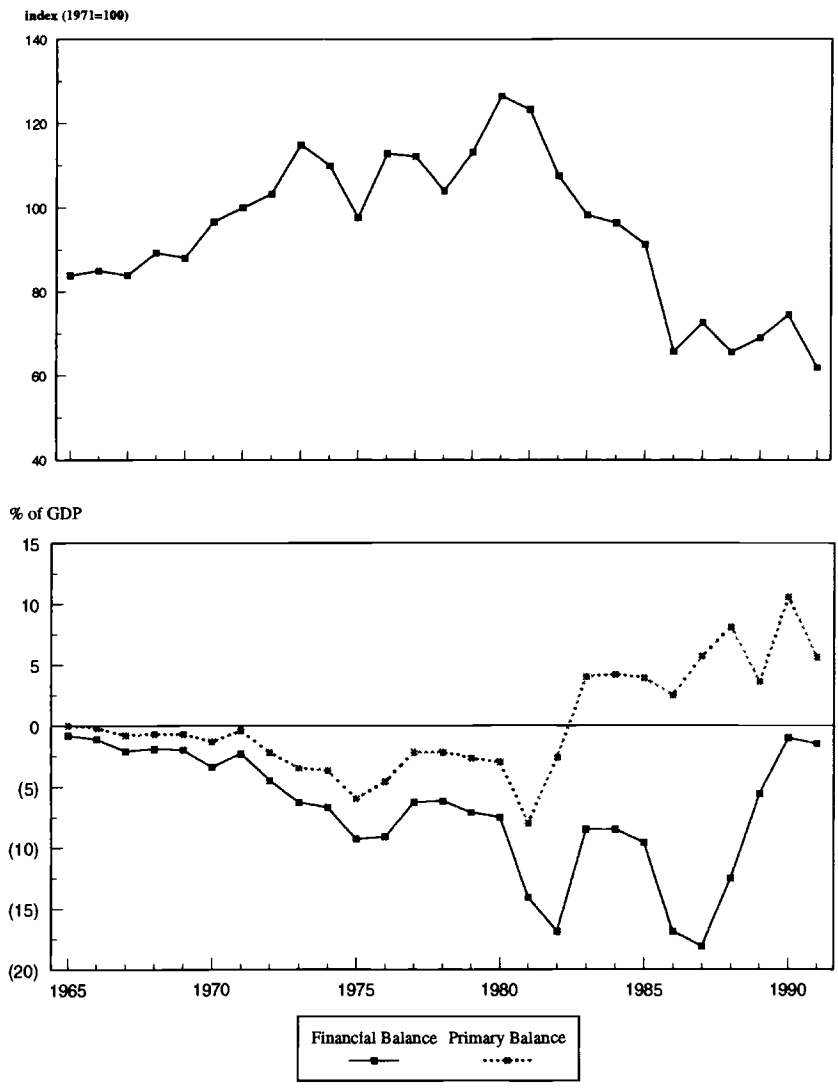

Fig. 2.1 Mexican terms of trade and fiscal balance
Notes: The primary balance includes interest payments, while the financial balance excludes them. In both cases the revenue from privatization is excluded.

trade liberalization. However, when fiscal revenue plummeted, the cohabitation equilibrium broke down, as it became profitable for each group to undertake actions to diminish the power of the other group, and thus secure a greater share of fiscal revenue for itself. In other words, previously friendly rivals switched to an attitude of "if I don't shoot, he will shoot." Support of trade liberalization was one such action.

As fiscal revenue collapsed in the early eighties, the parastatal elite took the

first action. It induced the expropriation of all private banks in 1982. This move took everyone by surprise, and it was rumored that more expropriations were to follow. However, to the astonishment of many, the next move was trade liberalization. This time trade liberalization was supported by the private elite even though it faced severe costs in terms of reallocation of factors of production. It supported trade liberalization because *the choice for the private elite was not between the status quo and trade liberalization, as in the seventies, but between more expropriations and trade liberalization.*

Trade liberalization reduces the risk of further expropriation because it entails what one might call a "discipline effect." This effect has two components, foreign and domestic. The foreign component derives from the fact that under free trade it is no longer easy for the government to expropriate, since it has to fear that foreigners will retaliate by withdrawing investment or erecting trade barriers. Moreover, international agreements such as NAFTA penalize the imposition of regulations that protect some sectors. Thus, when seeking protection and subsidies, interest groups have to face the potential retaliation from foreigners. The domestic component in turn has two aspects; first, free trade generates new strong groups, that is, exporters who have an interest in maintaining free trade. Second, under free trade, regulations become simpler and more transparent. The previous involved system of import licensing and multiple tariffs is replaced by a much more straightforward law mandating only one or two rates to be applied across all industries. These new rules expose rent-seeking behavior by individual groups more effectively. As a result, other groups may block it at inception.

The second point of the paper is that, as the major interest groups had been weakened by their internecine struggles (which were reflected in bank expropriation and trade liberalization), the governments of Presidents de la Madrid and Salinas achieved a temporary *autonomy* from the established elites. This enabled them to press on with further reforms that had been deemed impossible just a few years back, such as the privatization of the majority of state-owned companies, including the banks, a radical deregulation process that eliminated monopolistic rents on items ranging from jelly jars to ports, and a major tax reform.

In sum, trade liberalization was supported by the private elite in order to save itself from the parastatal elite. Under free trade, the parastatal elite has to face new interests: exporters and foreigners. However, free trade also limits the ability of the private elite to obtain monopoly rents. Referring to the quote from Marx's "Eighteenth Brumaire of Louis Bonaparte," we might say that in the Mexican case trade liberalization acted as the sword of Damocles.

In order to make these points more precise, I present in section 2.3 a game-theoretic model that analyzes the interaction between the two interest groups. I explain why in good times trade liberalization is blocked unanimously by all powerful interest groups, and why in bad times this unanimity breaks down, with some groups supporting trade liberalization, even if all groups end up worse off than under the status quo.

The model is based on the observation that each group has the potential to reduce the power of the second group by temporarily using part of its fixed factors in activities other than production. This entails a short-run cost in terms of forgone profits, and a long-term gain derived from a weaker second group. For example, consider the case of trade liberalization. When it is implemented, some of the fixed factors remain temporarily idle because they have to be reallocated. Although this involves a short-term loss, the future power of rent-seeking groups to expropriate will be reduced because of the discipline effect of trade liberalization.

The cohabitation equilibrium breaks down when one group finds it profitable to incur the short-run cost and displace the second group. If in addition the payoff of matching is greater than the payoff of staying put, the second group will also incur the short-run cost and eliminate the power of the first group. In these circumstances, both groups lose their power, and reform might take place. I show that this occurs when fiscal revenues, and thus subsidies, are sufficiently small. This is because the profitability of fixed factors goes down, making it less costly to have part of them idle during the short run, and raising the incentives to displace other groups and having access to a greater share of the smaller fiscal revenue. This situation is similar to the game of musical chairs. If there are two chairs for Helen and Mary, they have no reason to fight even when the music stops. If we remove a chair, however, Helen and Mary will scream and fight for that chair even before the music stops.

I would like to point out that this paper *does not* suggest that the reforms that took place in Mexico would have happened regardless of who was the president. The autonomy to act can be used in various ways, and the protagonists as well as fashionable academic ideas will influence the course chosen. It might well be that if the government had been headed by persons other than de la Madrid and Salinas, they would have misused their temporary autonomy. What is clear, however, is that the mutual weakening of the major interest groups gave the government the latitude to implement the reforms.

Finally, a few words about how this paper relates to the literature. The model I present is a two-period version of a preemption game. These games are used in industrial organization to study the adoption of a new technology or the introduction of a new product. Since such a move entails a cost, any firm would prefer to adopt as late as possible, provided the other firms also wait. However, since introducing the product first gives a monopolistic advantage, at some point in time each firm would find it optimal to preempt, if the other firms were waiting to adopt at a later date. Therefore, there might be early adoption even if it is against the interest of the industry as a whole.

Alesina and Drazen (1991) use a war-of-attrition model to analyze delays in stabilizations. In a war of attrition, the game ends when one player concedes, and as long as the war continues both groups incur a cost. In contrast to preemption games, in a war of attrition each player wants the game to end as soon as possible, and prefers the other to concede first. In the model of Alesina and

Drazen, delays occur because players are *uncertain* about the payoffs of the other players. By waiting they induce the weaker players to concede first.

Fernandez and Rodrik (1991) present a model where *uncertainty* regarding the probable winners and losers from reform leads to a bias toward the status quo. Thus reforms that would have been blocked might find support if they could be implemented.

Lastly, Velasco (1993) presents an argument along the same lines as mine to explain the reforms that took place in Chile during the seventies. Unlike Mexico, in Chile it was not a drastic collapse in the terms of trade that induced the breakdown of the status quo, but rather "the arrival of several new guests at the dinner table of the distributive state" in the sixties. Among them were the traditional urban labor movement, the shanty-town dwellers, and rural labor. However, the effect was the same as in Mexico: less available fiscal revenue for each group. This increased the incentives to incur the short-run costs necessary to eliminate the power of the other groups. The results were the wave of expropriations and strikes of 1970–73 and the trade liberalization of 1975. As established interest groups weakened one another, Pinochet acquired autonomy to act as he saw fit.

This paper is structured as follows. In section 2.2 I review the Mexican experience in detail. In section 2.3 I present the model. In section 2.4 I analyze the role of politics. In section 2.5 I address the issue of whether the reforms should outlast the crisis that generated them. Lastly, in section 2.6 I present the conclusions.

2.2 The Mexican Experience

During the fifties and sixties, Mexico followed an import substitution policy and a tight fiscal policy. The economy experienced an extraordinary average GDP growth of almost 7% per year and annual inflation rates of less than 5%. However, industrialization had been attained by way of very protectionist trade policies and heavy regulation.[1] By the end of the sixties, the emerging consensus held that the import substitution strategy had been exhausted and that a reform was needed. At the same time, there was mounting pressure from the left for a reduction in poverty and income inequality.

In order to address these demands, the administration of President Echeverría (1970–76) increased the emphasis on redistributive policies and increased its involvement in production. Thus the administration started an ambitious program of building state-owned enterprises in sectors that had been private in the past, such as steel. Increased government expenditures were not matched by higher taxes because opposition from the private sector did not allow the government to implement a tax increase. As a result, the fiscal deficit

1. For an analysis of the "Desarrollo Estabilizador," see Ortiz Mena (1970). For an analysis of the period 1970–82, see Bazdresch and Levy (1991).

increased from 4% of GDP in 1970 to 10% in 1976. This in turn led to higher inflation, higher foreign debt, and higher current account deficits. It is interesting to note that, prior to becoming president, Echeverría was the minister of the interior, and at that time he was considered an economic conservative.

Echeverría's six years ended with a depreciation of the currency of 60%, tense relations between government and private sector, and the emergence of the parastatal elite as a strong new interest group. Indeed, this group had benefited the most from the new investment projects initiated by the government. Unfortunately, contrary to expectations, indicators of income distribution had not improved.[2] It should be emphasized that, despite its antibusiness rhetoric, the Echeverría government did not introduce trade and fiscal reforms, even though these had been deemed necessary since the early seventies.

When President López Portillo took office in 1976, he tried to reestablish cordial relations with the private sector. Although in 1977 the government announced intentions of a structural reform, and a fiscal contraction was begun, these plans were soon abandoned. This was due to the discovery of significant oil reserves and the increase in the price of oil. A free-for-all fiscal policy was implemented, meaning that the increase in the fiscal revenue was matched by a more than proportional increase in government expenditures. The investment program in government-owned enterprises was accelerated; prices of electricity, oil, and gas were heavily subsidized; and a very ambitious program to reduce poverty was implemented. An indicator of the increase in fiscal transfers is the evolution of expenditures of the parastatal sector, which represented 9.8% of GDP in 1970 and reached 22.2% in 1982. An indicator of the transfers to the private sector is the half-billion-dollar bailout in 1981 of Grupo Alfa, one of the biggest private companies in Mexico. As a result of these policies, the fiscal deficit jumped from 10% in GDP in 1977 to 17% in 1982.

Since fiscal revenue was sufficient to give transfers to almost every group—to the parastatal and private elites, to the urban middle class and to the rural poor—it is fair to say that every powerful group was satisfied with the status quo, and no incentive existed to implement the reforms contemplated since 1970. That is, high subsidies led to high profitability of fixed factors owned by powerful groups. Therefore no group found it profitable to incur the short-run cost necessary to weaken the other groups, and secure for itself a greater share of future fiscal revenue. Hence in those years of bonanza, all powerful groups blocked reform. An example, mentioned in the introduction, is the 1979 presidential announcement of Mexico's intentions to adhere to GATT. This plan generated criticism from the private and the parastatal elite, and in 1980 the decision not to accede to GATT was made public. It should be noted that, were one to embrace the central-planner view of policy making, another plausible explanation for this outcome is that the members of the economic cabinet did not consider free trade to be welfare improving.

2. See Aspe and Beristain (1984).

The populist transfer policies had to be halted at the beginning of the eighties due to the fall in the price of oil and the interruption in foreign lending. As a result, fiscal resources were no longer sufficient to satisfy all interest groups. Thus there was an increase in the net payoff that a group could expect from inducing a change in the status quo. The first move was made by the parastatal elite. In September 1982, just three months before he left office, President López Portillo announced the expropriation of all the Mexican private banks during his last and very dramatic address to Congress. The bank owners were considered one of the strongest groups within the private elite, and the banks an important conduit of fiscal revenue to the private sector (through subsidized credit and through implicit guarantees of their borrowings from foreign banks). The expropriation occurred simultaneously with the imposition of capital controls, and with the resignation of the orthodox governor of the Central Bank, Miguel Mancera. He was replaced by Carlos Tello, an economist with interventionist ideas, who was close to José A. de Oteyza, the extremely influential minister of energy, mines, and parastatal industry. The reaction of the private sector representatives was to call a national strike for September 8. However, on September 7, this strike was canceled.

In the midst of this crisis, President de la Madrid took office in December 1982. There were fears that under his tenure expropriations would continue and statism would increase, since after all he had been the minister of budget and planning during the administration of President López Portillo. However, the opposite occurred. During his tenure, three important decisions were made: not to interrupt debt service to foreign banks, to open the economy by joining GATT in 1985, and to privatize the parastatal sector. Confirming the commitment to monetary austerity, Miguel Mancera was reappointed governor of the Central Bank (a position he holds until the present).

Trade liberalization was painful for the private sector. The puzzle is why it did not oppose trade liberalization this time around, given that it had opposed reform in the past. The argument of the paper is the following: The reversion of lending flows from inflows to outflows and the deterioration in the terms of trade resulted in a reduction in the fiscal revenue available for rent-seeking groups. In order to eliminate the access that the private sector had to fiscal revenues via subsidized credit, the parastatal elite decided to induce the expropriation of the banks. The private sector matched this move by incurring the adjustment costs associated with trade liberalization. Adherence to GATT and later to NAFTA had a double effect. First, it blocked the access of the parastatal group to fiscal revenues because these treaties required Mexico to deregulate and to eliminate the bulk of fiscal subsidies. Second, expropriation of private industries was more difficult in an open economy. In other words, the private elite did not oppose trade liberalization because its choice was not between trade liberalization and the status quo, but between trade liberalization and becoming the follower. It chose the first because it thereby could weaken the parastatal elite and stop further expropriations.

The moves undertaken by the parastatal and the private elites were costly to these groups, and reduced their access to fiscal revenue. Indeed, it is very likely that for these groups (not for the economy as a whole) the status quo would have been more advantageous than the free trade regime, deregulation, and reduction in subsidies. The question is why they nonetheless acted the way they did, given that they were rational and had perfect foresight. The answer is simple: As fiscal revenues shrank, the payoff of becoming the "leader" and displacing the other group became greater than the payoff of retaining the status quo. Thus the implicit agreement not to take any action against the other group was not sustainable anymore, and was broken by the parastatal elite with the expropriation of the banks. For the private sector the expected payoff of matching by supporting trade liberalization was greater than the expected value of not liberalizing and becoming the follower (with the risk of being further expropriated by the leader). Therefore, the private elite decided to match the move by the parastatal elite.

The result was that both groups lost their power, giving autonomy to the government to implement further reforms. Thus the de la Madrid administration was able to implement the whole package of reforms that had been considered necessary since the late sixties. Foreign trade liberalization was completed, the privatization and deregulation processes were initiated, and the primary fiscal balance, which had been in deficit during the last decade, was transformed into a surplus. Figures 2.1 and 2.2 show the evolution of the Mexican terms of trade and of the primary fiscal surplus. As can be seen, the reforms of 1983–87 coincided with the sharp decline in the terms of trade. We might also note the sharp swing in the primary fiscal balance, which was transformed into a surplus in 1983 and remains positive.

In the political arena, the private sector reacted to trade liberalization partly by becoming more active in party politics. This broke the pattern of lack of political competition involving private interests noted by Skidmore and Smith (1984). According to Maxfield and Anzaldua (1987), before 1982 an implicit agreement had obliged businessmen to stay out of party politics, while in return the government promised to ensure a profitable investment climate.[3] The bank nationalization of 1982 dealt a blow to this accord and induced a structural shift. Since then some businessmen became involved in electoral politics by supporting Partido Acción Nacional (PAN), an opposition party from the right, and by running as candidates of the Partido Revolucionario Institucional (PRI), the party in power. For example, in the presidential elections of 1988, the candidate of the PAN was Clouthier, a former member of PRI who was the leader of the business association when the banks were expropriated.

Some members of the parastatal sector reacted by splitting from the PRI a few months before the presidential elections of 1988. Combining with leftist parties, a group headed by Cuauhtemoc Cárdenas and Porfirio Munoz Ledo

3. For an insightful analysis of the Mexican political system, see Cosio Villegas (1972).

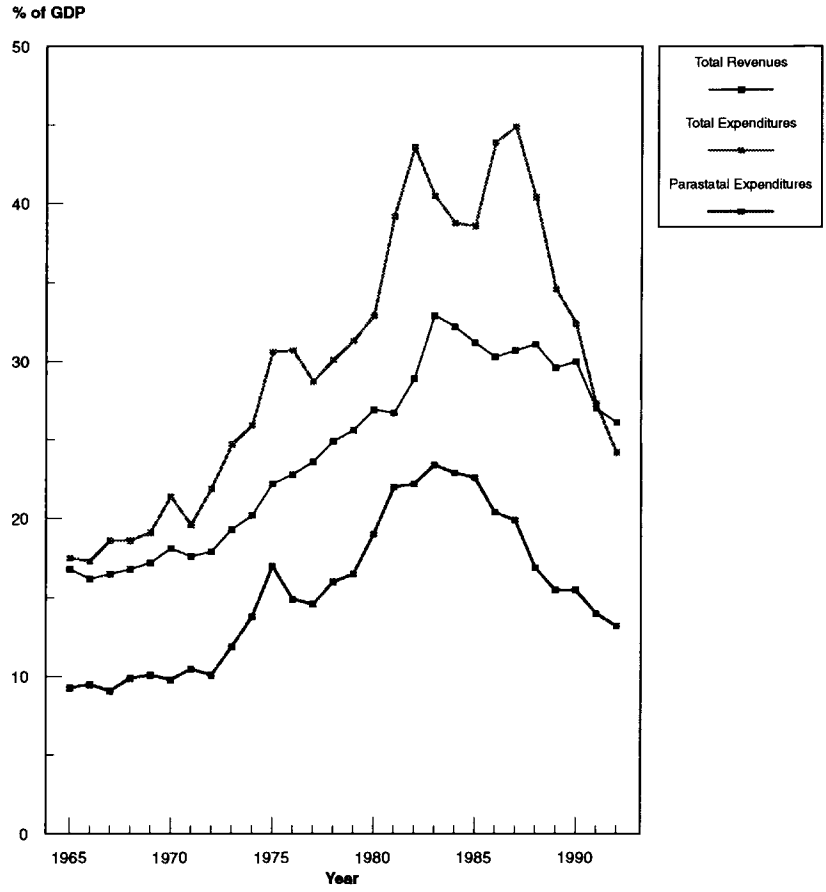

Fig. 2.2 Revenues and expenditures of the Mexican government

formed the Partido de la Revolución Democratica (PRD) and obtained a third of the votes. Cárdenas is the son of the former president who founded the modern PRI, and was the manager of the Sicarsa steel plant (built during the seventies) and a governor of the state of Michoacán. Munoz Ledo was a cabinet minister and head of the PRI.

2.3 The Model

I present a two-period model where, under the status quo, all rent-seeking groups have common access to fiscal revenue. During good times none of the groups has incentives to change the status quo, while during bad times, it is optimal for each group to incur the costs necessary to bar the other groups

from access to fiscal revenue. The model contains three ingredients: rent-seeking groups that compete to appropriate fiscal revenue; a sector that is not organized politically, that is the source of fiscal revenue; and a rule describing how one group can bar another group from access to fiscal revenue. There is neither capital accumulation nor depreciation in the model.[4]

The rent-seeking sector is composed of two groups (a and b), which live for two periods and which produce a consumption good that is traded internationally and is the numeraire. This good is produced using capital and a variable input provided by the government at a subsidized price. The objective of each group is to maximize the present value of its profits. For each period the profits of group i are given by

$$\pi(g_i, z) = g_i^{\beta} k_i^{\gamma} - z g_i, \qquad 0 < \beta \leq 1, \quad \gamma > 0, \tag{1}$$

where g_i is the amount of government input used by group i, z is the unit price of this input, and k_i is the capital stock of group i. The g's may also have a more indirect interpretation as import tariffs. In this case, z would represent bribes to the bureaucracy that administers trade policy or patronage payments to politicians.

Setting up the problem in this way captures the fact that in many countries fiscal transfers to rent-seeking groups take the form of government inputs, such as electricity, gas, and soft credit, provided at subsidized rates. For instance, in the case of Mexico, transfers from the federal government to the national electric utility (in order to sell cheap electricity) represented 0.3% of GDP in 1971 (when President Echeverría took office), 0.5% in 1977, and 1.7% in 1983, (when President López Portillo left office). At present, following the fiscal reform, these subsidies represent only around 0.1% of GDP.

Next, we will describe the nonorganized sector, which is the source of fiscal revenue. This sector is composed of investors that live for only one period. During each period, the representative investor is born with an endowment of W units of the consumption good. She can invest it abroad and receive a fixed tax-free rate of return r, or she can invest it domestically to produce a good that is not consumed domestically, using a decreasing returns technology. The government cannot tax foreign source income. Thus the investor must pay only taxes equal to a proportion τ of the profits on her domestic investment. The investor spends all of her after-tax income on the importable consumption good.

Since the exportable good is produced using the consumption good as the only input, it follows that the representative investor has an after-tax income equal to

$$Y = [1 - \tau] p w^{\alpha} + [1 + r][W - w], \qquad 0 < \alpha < 1, \tag{2}$$

4. In Tornell (1992), I characterize the evolution of a similar economy, in which there is capital accumulation and property rights switch endogenously between private and common access.

where τ is the tax rate, w is the amount of working capital invested domestically, and p represents the terms of trade (i.e., the price of the exportable good produced by the nonorganized sector, in terms of the importable consumption good). If instead the nonorganized sector produced the consumption good, then p would be a shift parameter measuring the profitability of investing domestically.

Lastly, we consider the government. It produces the input used by rent-seeking groups at a cost of one in terms of the consumption good. However, it sells this input at $z < 1$. To cover the costs, the government collects taxes from the nonorganized sector. I assume that the government cannot issue debt, so that the fiscal budget has to be balanced during each period. I also assume that payments made by rent-seeking groups for government inputs are not used to cover the fiscal budget. They are made for purposes of patronage or corruption. It follows then that

$$g_a(t) + g_b(t) = T(t), \tag{3}$$

where $T(t)$ is total fiscal revenue during period t.

The objective of the government is to maximize income in the nonorganized sector. Thus, if it were unconstrained, it would set g_a, g_b, and τ equal to zero during each period. However, the government's power is limited by the power of rent-seeking groups. I will consider three possible regimes under which τ is determined:

1. "Common access": under this regime the government is powerless, and both groups have equal power. The tax rate is set equal to the revenue maximizing level ($\hat{\tau}$).[5]

2. "Leader-follower": under this regime all power is concentrated in one group, "the leader." The government and the other group ("the follower") are powerless. As in the previous regime, τ is set equal to $\hat{\tau}$.

3. "Autonomous": under this regime both groups are weak. The only constraint faced by the government is to transfer to the groups a small proportion $\underline{\tau}$ ($< \hat{\tau}$) of the nonorganized sector's domestic income.

Tax rates are derived assuming the following sequence of events. During each period, conditional on $p(t)$ and on the prevalent regime, the government sets $\tau(t)$. Then, conditional on $p(t)$ and $\tau(t)$, investors choose $w(t)$ and each group is allocated its respective share of $T(p(t))$, $g_a(t)$ and $g_b(t)$. Under the leader-follower and common access regimes, the government sets τ so as to maximize tax revenues, taking as given that the representative investor allocates her working capital so as to equalize after-tax rates of return. I show in the appendix that tax revenue is maximized at $\hat{\tau} = 1 - \alpha$. Therefore, under these regimes the tax revenue function is

5. Aizenman (1992) and Tornell and Velasco (1992) analyze the common access regime in a dynamic setup.

$$\hat{T}(p) = p\hat{w}(\hat{\tau}(p), p)^{\alpha}\hat{\tau}(p) = Bp^{1/(1-\alpha)}, \qquad B > 0. \tag{4}$$

Under the autonomous regime, the government sets $\tau = \underline{\tau} < 1 - \alpha$. Thus

$$T_{aut}(p) = pw(\underline{\tau}, p)^{\alpha}\underline{\tau}. \tag{5}$$

Since $T(p, \tau)$ is concave in τ (see equation [A3]), and since $\underline{\tau} < 1 - \alpha$, it follows that $\hat{T}(p) > T_{aut}(p)$ for all p.

Consider the following two-stage game between both rent-seeking groups. In the first stage, both groups have common access to fiscal revenue. At time 0, after $p(0)$ and $p(1)$ are revealed and after $\tau(0)$, $g_a(0)$, and $g_b(0)$ are chosen, each group decides whether or not to lose a proportion q of its profits, in order to eliminate the access to fiscal revenue that the other group will have at time 1. In the second stage, $\tau(1)$, $g_a(1)$, and $g_b(1)$ are chosen.[6]

The preceding sequence of moves is meant to capture the two effects of trade liberalization that I identified in the introduction. To see this, let the two groups be the import-competing elite and the parastatal elite. On the one hand, the efficiency effect of trade liberalization implies that productive factors must be reallocated. This entails a short-run cost to the import-competing elite. On the other hand, the discipline effect of trade liberalization implies a reduction in the ability of the parastatal elite to expropriate the assets of other groups in the future.

There are three possible outcomes in this game.

1. Status quo: neither group incurs the cost $q\pi$, and common access to fiscal revenue prevails.

2. Matching: both groups incur the cost $q\pi$, both lose their power, and a shift to the autonomous regime takes place.

3. Leader-follower: one group incurs the cost $q\pi$ and becomes the leader, while the other group does not and becomes the follower. The leader gets the government input for free, and it can expropriate all the wealth of the follower.

Next, I determine the equilibrium levels of g_a and g_b. To make precise the idea that rent-seeking groups are inefficient in production, and that the government subsidizes them through low input prices, I make two assumptions that hold for all regimes and for all realizations of p. First, neither group finds it profitable to buy an extra unit of the input at a price of one (recall that the inputs' marginal cost of production is one). Second, there exists an excess demand for the government input at the price z. Since p takes values in the interval $[\underline{p}, \bar{p}]$, since the leader gets the government input for free, and since $\beta \leq 1$, these conditions hold if and only if

$$\beta[T_{aut}(\underline{p})/2]^{\beta-1}k^{\gamma} < 1, \qquad \beta[\hat{T}(\bar{p})/2]^{\beta-1}k^{\gamma} \geq z. \tag{6}$$

6. The same results could be obtained if the cost was a proportion q of revenues, or of the capital stock.

I assume that in the case of the autonomous and the common access regimes half of total fiscal revenue is allocated to each group. Condition (6) implies that it is not optimal for any group to buy the input at its market price. Consequently, we have that the g's are given by

$$(7)\quad g_l(p) = \hat{T}(p), \qquad g_f(p) = 0, \qquad g_{ca,i} = \hat{T}(p)/2, \qquad g_{aut.i} = T_{aut}(p)/2.$$

To determine which of the three possible outcomes mentioned above will be equilibrium outcomes, I derive the payoffs associated with each. Using (1) and (7), the payoffs of the follower and the leader are

$$(8)\qquad F(p_0) = \pi(\hat{T}(p_0)/2, z),$$

and

$$(9)\qquad L(p_0, p_1) = [1 - q]\pi(\hat{T}(p_0)/2, z) + \delta\pi(\hat{T}(p_1), 0),$$

where δ is the discount factor.

Under the status quo, the common access regime prevails in both periods. Thus the payoff of each group is

$$(10)\qquad SQ(p_0, p_1) = \pi(\hat{T}(p_0)/2, z) + \delta\pi(\hat{T}(p_1)/2, z).$$

Lastly, in the matching case, both groups incur the short-run cost, and their power to set the tax rate is eliminated. The payoff of each group is

$$(11)\qquad M(p_0, p_1) = [1 - q]\pi(\hat{T}(p_0)/2, z) + \delta\pi(T_{aut}(p_1)/2, z).$$

In order to characterize the Nash equilibria of the game, it is useful to represent it in the following strategic form,

		Group a	
		I	*NI*
Group b	*I*	(*M*, *M*)	(*F*, *L*)
	NI	(*L*, *F*)	(*S*, *S*)

where *I* stands for incurring the short-run cost, *NI* for not incurring it, *M* for matching, *S* for status quo, *F* for follower, and *L* for leader. The first and second terms in parentheses are the payoffs to groups a and b, respectively; they are given by equations (8)–(11).

The size of *L* relative to *S* and the size of *M* relative to *F* determine which of the three possible outcomes (status quo, leader-follower, or matching) will be an equilibrium outcome. For instance, if $L \geq S$ and $M \geq F$, the unique Nash equilibrium is matching (i.e., that both groups incur the short-run cost q). On the one hand, given that group a incurs the cost, the best response of group b is to match because the payoff of matching is greater than that of becoming the follower. On the other hand, regardless of group b's action, group a finds it profitable to incur the cost. It either gets *L*, which is greater than *S* if b does

not move, or M, which is greater than F if b moves. For future reference, the equilibrium outcomes are summarized here.

Payoffs		*Equilibrium Outcomes*
$L \geq S$	$M \geq F$	shift to autonomous regime
	$M < F$	shift to leader-follower regime
$L < S$	$M \geq F$	status quo prevails, or shift to autonomous regime
	$M < F$	status quo prevails

As can be seen in equations (8)–(11), the relative sizes of the payoffs depend on the values of p_0 and p_1. In order to address the issue of when trade liberalization will take place, I let p_0 vary while keeping p_1 constant. I will show that for sufficiently small p_0 the only equilibrium outcome is matching (i.e., a shift to the autonomous regime), while for sufficiently high p_0 the only equilibrium outcome is the status quo. That is, trade liberalization is an equilibrium outcome during bad times, but not during good times.

The key to this result is that, as p_0 goes up, the value of remaining in the status quo increases more rapidly than the value of becoming the leader, and the value of following increases more rapidly than the value of matching. To illustrate we use figure 2.3, which depicts the payoffs F, L, M, and S as functions of p_0 (p_1 is held constant). All payoffs are increasing in p_0 because higher terms of trade increase the profitability for the nonorganized sector to invest domestically. This in turn increases total tax collection, and thus increases government subsidies at time 0. The higher the government subsidies are, the higher the profits of rent-seeking groups are under each regime.

To see why the payoff function of leading is flatter than that of the status quo, note that at time 0 the leader loses a share q of its profits (profits are $[1 - q]\pi(0)$), while under the status quo no cost is incurred (profits are $\pi(0)$). Thus an increase in $p(0)$ has a greater impact on the payoff of the status quo than in the payoff of leading, because $\pi(0)$ is increasing in $p(0)$ and because the future reward, in terms of a greater share of government subsidies, remains unchanged ($p(1)$ is fixed). In other words, at very low levels of $p(0)$ it is "cheap" to engage in nonproductive activities in order to induce change.

As can be seen in figure 2.3, during normal times ($p(0) = p$) the status quo is preferred to leading and following is preferred to matching. Thus at p the status quo is the only equilibrium outcome. However, during bad times ($p(0) \leq p'$) the only equilibrium outcome is matching. In this equilibrium, both groups lose πq at $t = 0$ and both lose their access to fiscal revenue. During good times ($p(0) > p''$), the only equilibrium outcome is the status quo. I analyze the case in which $p(0)$ is in $(p', p'']$ in the next section.[7]

7. There is another case in which $p' > p''$. In this case matching is the only equilibrium outcome for $p(0) < p''$, leader-follower is the only equilibrium outcome for $p(0) \in (p'', p']$, and the status quo is the only equilibrium outcome for $p(0) > p'$.

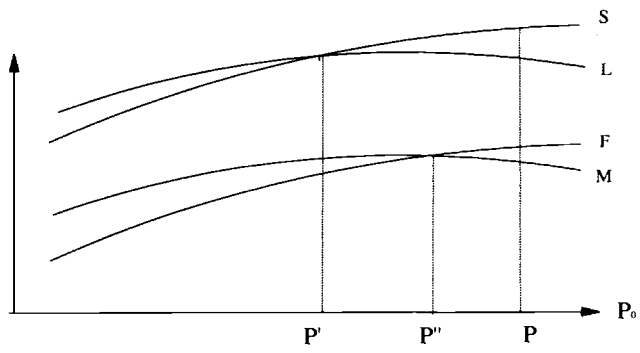

Fig. 2.3 Pair of functions

2.4 Does the Government Matter in This Model?

Up to now we have assumed that under the status quo interest groups can block any government decision. While maintaining this assumption, let us now suppose that the government has the ability to influence a group's expectations concerning the move that the other group will make. Let us define "political manipulation" as the act of influencing these expectations. It follows that political manipulation matters when there are multiple Nash equilibria in the game played by interest groups. In this case there is room for the government to induce interest groups to end up in the Nash equilibrium that is best for the economy as a whole, although it may be bad for the interest groups.

To illustrate this point, suppose that in the status quo both groups have common access to fiscal revenue, and consider the case in which $p(0)$ is between p' and p''. In this case the value of remaining in the status quo is greater than that of becoming the leader, and the value of matching is greater than that of following. Therefore, there are two Nash equilibria: In the first, neither group incurs the short-run cost $q\pi$, and the status quo prevails. In the second, both groups incur the cost, and there is a shift to the autonomous regime. Both groups are better off under the first equilibrium. However, the second equilibrium is sustained by the fear of each group that the other group will make the move. In this case, the role of political manipulation would be to bring about the second equilibrium. That is, the government would induce expectations among groups, that the other group will make the move. This is likely to be a difficult task for the government because the status quo is the Pareto-superior outcome.

The role of political manipulation as defined above is limited to this case. If p_0 were outside the interval (p', p'') or if p' were greater than p'', there would be a unique Nash equilibrium, as is clear from figure 2.3. Therefore, in these cases the outcome is independent of the government's political manipulation.

I should note that in the model we are considering groups that move simultaneously. In the real world, by contrast, groups can move sequentially and can

follow more complicated strategies that depend on the history of the game. However, to the extent that there exists an advantage to moving first, the results of this paper should remain valid.

2.5 Reversion of the Reforms and Policy Implications

A question often asked is whether or not trade liberalization and fiscal reform will outlast the crisis that generated them, or whether there will be a reversion to the old ways if good times return.

In the case of Mexico, beginning in 1989, the wind started to blow in a favorable direction. There was a 35% reduction in foreign debt, exports were more diversified than in 1982, and financial capital started to flow in again. The reforms initiated by President de la Madrid were not undone, however, but were deepened to an extent that was considered impossible a few years back: NAFTA has been signed, all the big companies except for oil, electricity, and railroads have been privatized, and a radical deregulation program has been implemented, eliminating many monopolies and sources of corruption.

We can analyze the reversion of reform using a model similar to the one in section 2.3. Suppose that the autonomous regime prevails under the status quo (i.e., rent-seeking groups do not have access to fiscal revenue and $\tau = \underline{\tau}$), and consider the following two-stage game: In the first stage, after $p(0)$ and $p(1)$ are announced, and after $\tau(0)$, $g_a(0)$, and $g_b(0)$ are chosen, each group decides whether or not to incur a loss $q'\pi(T_{aut}(p_0)/2, z)$ at time 0, in order to become more powerful at time 1. In the second stage, $\tau(1)$, $g_a(1)$, and $g_b(1)$ are chosen. Again, there are three possible outcomes.

1. Only one group incurs the loss, and it becomes the leader. Thus the other group becomes the follower.
2. Both groups incur the loss, and both get common access to fiscal revenue.
3. Neither group incurs the loss, and the status quo prevails.

As in section 2.3, under the common access regime $g_i = \hat{T}(p)/2$, and under the leader-follower regime $g_f = 0$ and $g_l = \hat{T}(p)$. Therefore, the payoffs of the leader and the follower are

$$L = [1 - q']\pi(T_{aut}(p_0)/2, z) + \delta\pi(\hat{T}(p_1), 0), \tag{12}$$

and

$$F = \pi(T_{aut}(p_0), z). \tag{13}$$

Under the status quo, the autonomous regime prevails in both periods. Thus the payoff of each group is

$$S = \pi(T_{aut}(p_0)/2, z) + \delta\pi(T_{aut}(p_1)/2, z). \tag{14}$$

Lastly, in the matching case the payoff of each group is

$$M = [1 - q']\pi(T_{aut}(p_0)/2, z) + \delta\pi(\hat{T}(p_1)/2, z). \tag{15}$$

In terms of this model, a reform is not undone if the status quo is the only equilibrium outcome. Recall that this is the case if and only if the status quo is preferred to leading, and following is preferred to matching. Subtracting (14) from (12) and (13) from (15), $L - S$ and $M - F$ are increasing in $p(1)$ and decreasing in $p(0)$. Thus, at high levels of $p(1)$, the status quo ceases to be an equilibrium outcome. There is a shift to common access or to the leader-follower regime.

Let us now consider the policy implications of this model. Suppose that the costs of getting access to fiscal revenues (q') can be affected by the government. Since $L - S$ and $M - F$ are decreasing in q', it follows that, if during the period that the government enjoys autonomy it implements policies that lead q' to increase at a faster rate than potential fiscal revenue, then the likelihood of a reversion to the old system of privileges diminishes. On the contrary, if potential fiscal revenue were to grow faster than q', the likelihood of a failed reform would increase because of the heightened temptation of the groups to gain back their old privileges.

We might identify policies that alter q' as those that have to do with structural and judicial reform. For instance, signing a free trade agreement limits the possibility that groups will gain back import protection or production subsidies. Eliminating complicated regulations, introducing clear bankruptcy laws, and creating an independent judicial system will make the reestablishment of a patronage network much more expensive, since there will be no room for "interpretation of the law."

Increases in the parameter p can be identified with events that increase the ability of the government to obtain more fiscal revenue or that allow the government to borrow more. These events include an increase in foreign aid, discoveries of natural resources such as oil, and improvements in the terms of trade. These events might increase the cost a rent-seeking group is willing to pay in order to get access to this enlarged source of revenue.

For instance, if after a crisis foreign aid were granted, with no conditions of change in the regulatory framework or in the subsidization scheme, then the temptation of rent-seeking groups to gain back their old privileges would increase. Thus, foreign aid packages might have the unintended effect of preventing growth-enhancing structural change.

2.6 Conclusions

In Mexico, since the late sixties it became evident that the protectionist development strategy was not beneficial for the country anymore. However, trade liberalization did not take place until 1985, and the badly needed fiscal reform did not take place until 1989.

In this paper, I offer an explanation of why these reforms were delayed until an economic crisis took place and were not implemented during the 1970s,

when the country could afford the costs associated with these reforms. My premise is that welfare-improving reforms for the country can be blocked by powerful interest groups that stand to lose from these reforms.

The interest groups that blocked the reforms during the seventies were the private import-competing elite and the parastatal elite. In the seventies, both groups were interested in keeping the status quo. Since fiscal resources were plentiful, both groups enjoyed high subsidies, which kept the profitability of their fixed assets at a high level. Under these circumstances, it was not profitable for either group to redirect its assets away from productive activities in order to reduce the power of the other group and to guarantee for itself a greater share of fiscal revenue. Hence the status quo prevailed.

The equilibrium between these two powerful groups broke down when the debt crisis erupted in 1982, since the government could no longer maintain high levels of subsidies. The struggle between interest groups took place in the spheres of private bank expropriation and trade liberalization. The short-run costs of trade liberalization were the adjustment costs implied by the efficiency effects of free trade. The private elite benefited because the power of the parastatal elite to expropriate and obtain studies was reduced. This mutual weakening gave temporary autonomy to the government to implement a fiscal reform.

Appendix A

Here I derive the fiscal revenue function (4). During each period, given the realization of $p(t)$ and the tax rate $\tau(t)$, the representative investor maximizes equation (2) by allocating her working capital so as to equalize after-tax rates of return:

$$p[1 - \tau]\alpha\hat{w}^{\alpha-1} = 1 + r. \tag{A1}$$

In order to derive the fiscal revenue function, I further assume that the size of the investors' population is one. Thus, from (A1),

$$T(\tau, p) = p\tau\hat{w}(\tau, p)^{\alpha} = \frac{\tau}{[1 - \tau]^{\alpha/\alpha-1}} A p^{\frac{1}{1-\alpha}}, \qquad A = \left[\frac{1 + r}{\alpha}\right]^{\frac{\alpha}{\alpha-1}} > 0, \tag{A2}$$

where T is total fiscal revenue. Under the common access and the leader-follower regimes, the tax rate is set so as to maximize tax revenue. The first and second order conditions are

$$\frac{dT}{d\tau} = \left\{[1 - \tau]^{\alpha/(1-\alpha)} - \tau[1 - \tau]^{(2\alpha-1)/(1-\alpha)} \frac{\alpha}{\alpha - 1}\right\} A p^{1/(1-\alpha)} = 0 \tag{A3}$$

and

$$\text{(A4)}\quad \frac{d^2T(p,\tau)}{d\tau^2} = \frac{\alpha}{1-\alpha}[1-\tau]^{(2\alpha-1)/(1-\alpha)}\left[\frac{2\alpha-1}{1-\alpha}\frac{\tau}{1-\tau}-2\right]Ap^{1/(1-\alpha)}$$

$$= -\frac{2\alpha A}{1-\alpha}p^{\frac{1}{1-\alpha}}[1-\tau]^{\frac{3\alpha-2}{1-\alpha}} < 0.$$

Since the solution to (A3) is $\tau = 1 - \alpha$, and since $T(p, \tau)$ is concave in τ, the fiscal revenue function under the leader-follower and the common access regimes is obtained by substituting $\tau = 1 - \alpha$ in (A2).

$$\text{(A5)}\quad \hat{T}(p) = Bp^{1/(1-\alpha)}, \qquad B \equiv [1-\alpha]\left[\alpha^2/(1+r)\right]^{\alpha/(1-\alpha)} > 0$$

Appendix B

Table 2.A1 **Mexican Fiscal Indicators (% of GDP)**

Year	Terms of Trade	Financial Balance	Primary Balance	Total Revenue	Total Expenditure	Parastatal Expenditure
1965	83.9	−0.8	0	16.8	17.5	9.3
1966	85.0	−1.1	−0.2	16.2	17.3	9.5
1967	83.9	−2.1	−0.8	16.5	18.6	9.1
1968	89.3	−1.9	−0.7	16.8	18.6	9.9
1969	88.0	−2.0	−0.7	17.2	19.1	10.1
1970	96.7	−3.4	−1.3	18.1	21.4	9.8
1971	100.0	−2.3	−0.4	17.6	19.6	10.5
1972	103.2	−4.5	−2.2	17.9	21.9	10.1
1973	114.8	−6.3	−3.5	19.3	24.7	11.9
1974	109.8	−6.7	−3.7	20.2	25.9	13.8
1975	97.5	−9.3	−6.0	22.2	30.6	17.0
1976	112.7	−9.1	−4.6	22.8	30.7	14.9
1977	112.0	−6.3	−2.2	23.6	28.7	14.6
1978	103.9	−6.2	−2.2	24.9	30.1	16
1979	113.1	−7.1	−2.7	25.6	31.3	16.5
1980	126.5	−7.5	−3.0	26.9	32.9	19.0
1981	123.3	−14.1	−8.0	26.7	39.2	22.0
1982	107.5	−16.9	−2.6	28.9	43.6	22.2
1983	98.2	−8.5	4.0	32.9	40.5	23.4
1984	96.3	−8.5	4.2	32.2	38.8	22.9
1985	91.1	−9.6	3.9	31.2	38.6	22.6
1986	65.6	−16.9	2.5	30.3	43.9	20.4
1987	72.5	−18.1	5.7	30.7	44.9	19.9
1988	65.5	−12.5	8.1	31.1	40.4	16.9
1989	68.9	−5.6	3.6	29.6	34.6	15.5
1990	74.3	−1.0	10.6	30.0	32.4	15.5
1991	61.8	−1.5	5.6	27.0	27.3	14.0
1992	—	—	—	26.1	24.2	13.2

Sources: Banco de México; Secretariat de Hacienda y Credito Publico.

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Comment

Kenneth A. Froot

Aaron Tornell has written a thought-provoking paper about the forces that opened the way for the Mexican liberalization of the 1980s. How were Presidents de la Madrid and Salinas able to overcome the political Achilles' heel of trade liberalizations—obtaining the backing of import-competing sectors—in their pursuit of openness? This is the question that Tornell asks. His approach is helpful in understanding how governments might gain consensus for programs that nevertheless impose substantial costs on powerful interest groups.

I want to make two points in this comment. First, I want to summarize what makes Tornell's model and argument work. Second, I want to identify and elaborate on another kind of explanation for how reforms can proceed and how a new consensus is achieved.

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Tornell's model features two private sector (i.e., maximizing) groups that compete to receive government subsidies. Under the preliberalized regime, these groups cooperatively share a fixed pie of government subsidies. However, either group has the option of deviating from this cooperative arrangement. By doing so, the deviating group gains access to the entire (fixed) pie of government subsidies in the *future,* taking for itself the future subsidies of the other group. The cost of doing this is that the deviating group loses a fraction of its *current,* shared subsidies. This cost can be thought of as the adjustment cost imposed on an import-competing sector as the result of a liberalization program. So, if this group decides to support liberalization, it loses protection today, but gains sole access to large subsidies tomorrow. Provided that the net costs of the liberalization are temporary, the import-competing sector is willing to support it. Because the two groups play in a noncooperative game, this argument makes both groups more willing to support change over the preliberalized status quo.

This argument has two basic features. First, it looks at the liberalization process as redistributive, not expansionary, in the long run. Second, it has the government playing a relatively unimportant role in initiating the liberalization. Tornell has done this in order to emphasize the interplay between opposing rent-seeking groups. And I agree that this is an important effect that determines the strategic behavior of interest groups. Nevertheless, I wonder whether import-competing groups generally allow liberalizations to occur because they want to leapfrog over (or avoid being leapfrogged by) another subsidy-seeking group. That is, I wonder whether liberalizations actually evolve out of a strategic interaction between private interest groups with only a minimal role for government.

My own reaction is that, to understand the liberalization process, one must first say something about why import-competing sectors come to be subsidized in the first place. One explanation is that subsidies are created by governments that have output and employment objectives that are not fully consistent with economic efficiency. Looking around the world, one can find many apparent examples of such objectives—governments (including that of the United States) routinely protect sunset sectors (in the United States, steel and footwear) from international competition, bail out large failing companies (such as Chrysler), and even forestall the collapse of large industries (such as that of the S&Ls). Governments are frequently willing to spend substantial resources on these less-than-efficient objectives. Liberalization—especially in Latin American countries, and certainly in eastern Europe and the former Soviet republics—in my view follows when there is a consensus that these objectives are too costly to pursue. That is, trade liberalizations occur when the government can no longer afford protection. Note that consensus under this story can evolve because reform substantially increases efficiency over that of the highly distortionary, status quo policies.

Next comes the question of why import-competing sectors would ever go

along. I think one answer is that, in these circumstances, the status quo cannot be maintained and is simply not an option at all. Such sectors do not view this as a choice between liberalization and the status quo, but between liberalization and something much worse, perhaps social unrest or political upheaval. And in many cases—think of the reforms in eastern Europe—such sectors really have little input into the reform decisions, which are broader in scope and much more far-reaching.

A second answer to why the import-competing sector would go along with liberalization involves growth. Preliberalized economies are often stagnating or contracting. The import-competing sector thus must choose between a protected, but shrinking, market versus a more open, but growing, market. It is not obvious that additional incentives are needed to get them to go along with liberalization measures.

Finally, recall that most liberalization programs include a healthy dose of exchange rate depreciation. Often trade protection has evolved partly in response to an overvalued currency. And liberalization is often a rationalization of the price structure in the economy, allowing relative prices to better reflect international standards. Because intermediate goods are often taxed, some import-competing sectors may actually be taxed rather than protected prior to liberalization.

In the end, both Tornell's story and the more standard one I suggest can rely on a crisis to motivate the policy switch. In Tornell's model, the crisis made both sectors more interested in pursuing government subsidies (such other revenues were harder to come by). In the standard story, the crisis comes when the government's antiefficiency goals are literally bankrupting the country, becoming too costly to finance in the domestic and international capital markets, and eroding the tax base through slow growth. As Tornell says, in the case of Mexico in the 1980s, there are surely elements of both.

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